Scanner Parts

document cover

carriage
(in the home position)

Operate button

indicator light

Start button

document table

Front View

SCSI ID rotary switch

SCSI interface connector
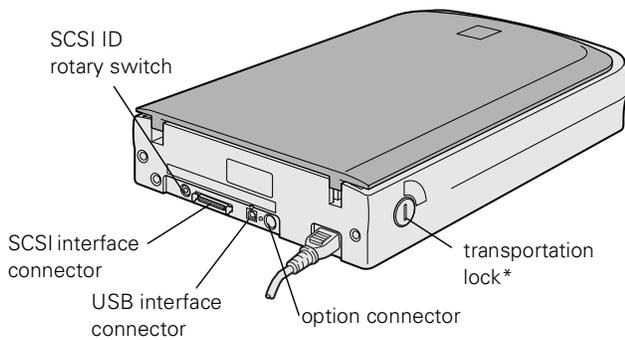
USB interface connector
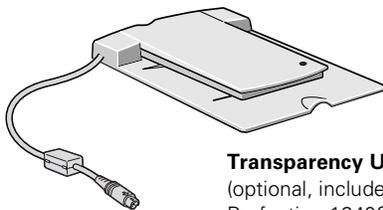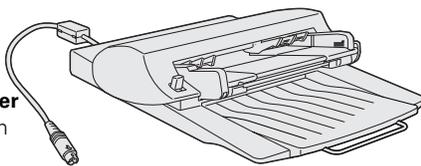
option connector

transportation lock*

Back View

Auto Document Feeder
(optional, included with EPSON Perfection 1640SU OFFICE)

Transparency Unit
(optional, included with EPSON Perfection 1640SU PHOTO)

* Before connecting the scanner to a power source, release the transportation lock (turn it down to the unlock position).

Scanner Specifications

Basic Specifications

Scanner type	Flatbed, color
Photoelectric device	Color matrix CCD
Effective pixels	13600 × 18720 pixels at 1600 dpi, 100% scaling
Maximum document size	US letter or A4 size (8.5 × 11.7 inches [216 × 297 mm]) Up to legal size if using the optional auto document feeder (the reading area can be specified from software)
Optical resolution	1600 dpi
Maximum hardware resolution*	1600 dpi (main scan) × 3200 dpi (sub scan)

* The maximum hardware resolution of 1600 × 3200 dpi is achieved using EPSON's Micro Step Drive™ technology.

Maximum interpolated resolution	12800 dpi
Speed (1200 dpi, draft mode)	Color and grayscale: 8.7 msec/line (approximate) Line art: 3.0 msec/line (approximate)
Output resolution	50 to 12800 dpi (50 to 6400 dpi in 1 dpi increments, 12800 dpi and 9600 dpi, 12800 dpi and 9600 dpi performed with zoom function)
Command level	ESC/I-B8
Zoom	50% to 200% in 1% increments
Pixel depth	14 bits per pixel
Brightness	7 levels
Line art settings	Fixed threshold TET (Text Enhancement Technology, enable/disable selectable)
Digital halftoning	AAS (Auto Area Segmentation, enable/ disable selectable) 3 halftoning modes (A, B, and C) 4 dither patterns (A, B, C, and D) for bi-level and quad-level data 2 user-defined dither patterns
Gamma correction	2 types for CRT display (A and B) 3 types for printer (A, B, and C) 1 type for user-defined

Color correction	1 type for CRT display 3 types for printer output 1 type for user-defined
Interface	USB (Type B receptacle connector) SCSI (High density 50-pin connector)
Light source	White cold cathode fluorescent lamp
Reliability	30,000 cycles of carriage movements (main unit MCBF)
Dimensions	Width: 11.4 inches (289 mm) Depth: 17.4 inches (442 mm) Height: 3.8 inches (96 mm)
Weight	Approx. 9.9 lb (4.5 kg)

Electrical

Specification	100–120 V model	220–240 V model
Input voltage range	AC 100 to 120 V ±10%	AC 220 to 240 V ±10%
Rated frequency	50 to 60 Hz	
Input frequency	49.5 to 60.5 Hz	
Rated current	0.5 A	0.3 A
Power consumption	Approx. 25 W operating Approx. 10 W stand by	

Note: Check the label on the back of the scanner for voltage information.

Environmental

Temperature	Operation: 41 to 95 °F (5 to 35 °C); 50 to 90 °F (10 to 32 °C) when using the auto document feeder Storage: –13 to 140 °F (–25 to 60 °C) –4 to 140 °F (–20 to 60 °C) with the auto document feeder
Humidity (without condensation)	Operation: 10% to 80%; 20% to 80% when using the auto document feeder Storage: 10% to 85%
Operating conditions	Ordinary office or home conditions; avoid extreme dust, direct sunlight, and strong light sources. Make sure the outlet provides enough power.

Safety Approvals

120 V model

Safety standards	UL 1950 CSA C22.2 No. 950 EMC FCC part 15 subpart B class B CSA C108.8 class B

230 V model

Safety standards	EN 60950 EMC EN 55022 (CISPR Pub 22) class B AS/NZS 3548 class B

CE marking

230 V model	Low Voltage Directive 73/23/EEC EN 60950 EMC Directive 89/336/EEC EN 55022 Class B EN 61000-3-2 EN 61000-3-3 EN 500-24

USB Interface

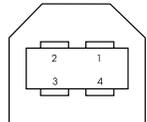| Interface type	Universal Serial Bus Specification Revision 1.1

Configuration

Element	Description
Configuration	Characteristics: Self-powered Remote wake up feature: Not supported Maximum power consumption from VBUS: 2mA (5V)
Interface	No alternate setting Number of endpoints used by this interface (excluding endpoint 0): 2 Class: Vendor specific
Endpoint 1	Bulk IN transfer Maximum data transfer size: 64 byte
Endpoint 2	Bulk OUT transfer Maximum data transfer size: 64 byte
String Descriptor	Language ID: US English 1: iManufacturer: "EPSON" 2: iProduct: "Perfection1640"

Electrical standard	Full Speed mode (12Mbit/s) of Universal Serial Bus Specification Revision 1.1
Connector type	One receptacle (Type B)

Connector pin arrangement

Pin number	Signal	Connector
1	VCC	
2	–DATA	
3	+DATA	
4	GND	

Initialization methods	The scanner can be initialized (returned to a fixed set of conditions) in the following ways:

Hardware initialization	* The scanner is turned on. * The USB cable is unplugged from the USB port on the scanner.
Software initialization	* Software sends the ESC @ (initialize the scanner) command. * The scanner receives a Bus Reset from the USB interface.

SCSI Interface

| Interface type	ANSI X3T9.2/375R Revision 10L (SCSI-2)

Functions	BUS FREE phase
	ARBITRATION phase
	SELECTION/RESELECTION phase
	COMMAND phase
	(the Logical Unit Number is fixed to 0
	and the command link function
	is not supported)
	DATA phase
	    Data in phase
	    Data out phase
	STATUS phase
	MESSAGE phase
	    MESSAGE IN phase
	    MESSAGE OUT phase
	ATTENTION condition
	RESET condition

Logic level	TTL compatible
Electrical standard	ANSI X3T9.2/375R Revision 10L (SCSI-2)
ID Setting	Selectable from 0 to 7 (factory setting: 2)
Terminator	Internal terminator (always ON)
Connector type	High density 50-pin connector

Connector pin arrangement
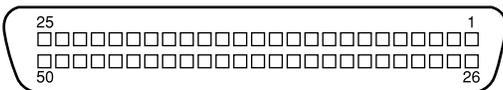
Initialization methods	The scanner can be initialized (returned to a fixed set of conditions) in the following ways:

Hardware initialization	* The scanner is turned on. * The scanner receives a SCSI Reset signal from the SCSI interface.
Software initialization	* Software sends the ESC @ (initialize the scanner) command. * The scanner receives a SCSI Bus Device Message.

Transparency Unit Specifications

The transparency unit (B813172) allows you to scan positive and negative transparent materials—35 mm slides, filmstrips, and film up to 4×5 inches in size.

NOTE The transparency unit comes bundled with the EPSON Perfection 1640SU PHOTO.

Basic Specifications

Dimensions	Width: 8.7 inches (222 mm) Depth: 12.0 inches (305 mm) Height: 1.4 inches (36 mm)
Weight	1.5 lb (0.7 kg)
Maximum readable area	3.6×4.6 inches ([93×118 mm] size of 4×5-inch film holder opening)
Electrical	Supply voltage: DC 21.6 to 26.4 V Rated current: 0.5 A
Reliability	10,000 hours for light source
Temperature	Operation: 41 to 95 °F (5 to 35 °C) Storage: –13 to 140 °F (–25 to 60 °C)
Humidity (without condensation)	Operation: 10% to 80% Storage: 10% to 85%
Operating conditions	Ordinary office or home conditions; avoid extreme dust, direct sunlight, and strong light sources.
Document specifications	Transparencies up to 4×5-inch film (negative film, positive film) 35 mm strip film (negative, positive) 35 mm slides (negative, positive) Brownie size strip film

Auto Document Feeder Specifications

The auto document feeder (B813222) allows you to automatically load multi-page documents into your scanner. This document feeder is particularly useful for OCR (optical character recognition) scanning. You can load up to 30 legal size (8 1/2 × 14-inches) pages in the auto document feeder.

NOTE The auto document feeder comes bundled with the EPSON Perfection 1640SU OFFICE.

Basic Specifications

Dimensions	Width: 12.6 inches (319 mm) Depth: 20 (508 mm) Height: 5.4 inches (137 mm)
Weight	4.9 lb (2.2 kg)
Feeder type	Face up loading, face down ejecting
Loading position	Left side of paper against left side of feeder
Connector	8-pin DIN male
Temperature	Operation: 50 to 90 °F (10 to 32 °C) Storage: –4 to 140 °F (–20 to 60 °C)
Humidity (without condensation)	Operation: 20% to 80% Storage: 10% to 85%
Operating conditions	Ordinary office or home conditions; avoid extreme dust, direct sunlight, and strong light sources.
Reliability	Load/eject: MCBF 20,000 sheets Hinge: MCBF 12,000 cycles
Electrical	Input voltage: DC 21.6 to 26.4 V DC 4.75 to 5.25 V Input current: 24 V: 0.8 A 5 V: 0.2 A

ADF Document Specifications

Feeder capacity	30 sheets of maximum weight 55 gm paper, total thickness less than 0.24 inch (6 mm)
Size	Width: 3.3 to 8.5 inches (85 to 216 mm) Length: 5 to 14 inches (127 to 356 mm)
Thickness	0.0028 to 0.0063 inch (0.07 to 0.16 mm)
Paper quality	High-quality paper, bond paper, check paper, recycled paper
Document type	Documents printed with impact printers, laser printers, or fax machines

NOTE

Don't use the following paper types: transparencies, film, coated paper, labels, carbon paper, or paper with staples, holes, rips, curls, or folds.

Using EPSON Smart Panel

Follow these steps to use EPSON Smart Panel to scan your document or photo:

1. Place your original document(s) face down on the document table.

2. Do one of the following to open the Smart Panel:

    ❏ Click the 💡 Smart Panel icon on the Windows taskbar.

    ❏ Open the Apple menu and select **EPSON SMART PANEL**.

If you have a modem and e-mail service, you can use your scanner to send photos or documents.

Optical character recognition (OCR) converts a scanned text image into text that you can edit in a word processing format.

Gives you an easy way to reprint your photos in any size you want.
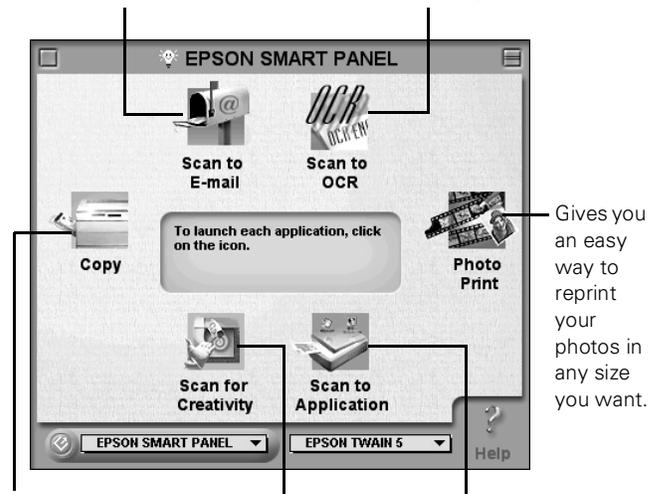
The control panel on your computer screen allows you to make copies of printed pages and photos.

Automatically scans your image and then opens it in PhotoDeluxe, which guides you through steps to create a print project—such as a calendar, card, label, or web page.

Automatically scans your image and then opens it in any supported application program on your computer.

3. Click the icon for your desired scanning option. The window for that option appears and lets you adjust settings for your scan. Follow the on-screen steps for each option.

TIP

If you select Copy or Photo Print, make sure your printer is turned on and the correct paper type and size is loaded in your printer. You can use Photo Print only with an EPSON Stylus® Color or EPSON Stylus Photo printer.

For detailed instructions on using each of the Smart Panel options, read your electronic manual for EPSON Smart Panel.

Using EPSON TWAIN

The first time you start EPSON TWAIN, you see the Automatic Scanning window.
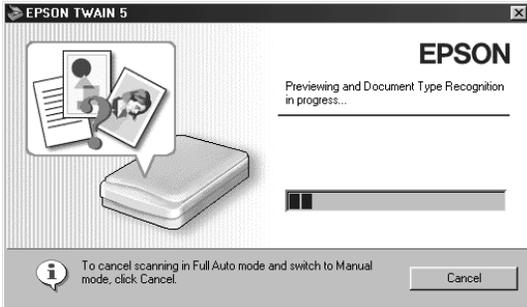
If you want, you can let the TWAIN driver automatically scan your document. It detects what type of document you're scanning and automatically chooses the optimum settings for your scan.

To scan in manual mode and adjust your scan settings, click Cancel.

You see the following window:
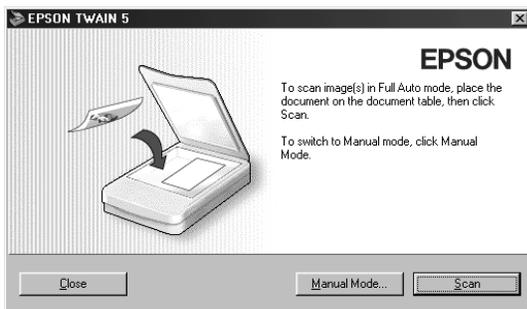
Click Manual Mode to open the EPSON TWAIN 5 window:

The illustration below shows settings you can adjust in EPSON TWAIN, and the preferred order to adjust them in.

1 Select the basic settings:
Document Source
Image Type
Destination

2 Preview your image

3 Automatically set the scan area for your image using Auto Locate

4 Size or scale the image (be sure to increase the Resolution if you increase the size or scale)

5 Customize Settings, Configuration, and use color management

**6** Scan the image into your application

7 Close the EPSON TWAIN window

The following settings are recommended for optimal scans:

Image type	Recommended Image Type	Scanning resolution for printing [1,2]
Photograph	Color Photo	300 dpi
Small photograph to be enlarged	Color Photo	300 dpi to 3200 dpi
Magazine	Color Photo	300 dpi
Newspaper (text only)	Text (Background Removal)	400 dpi
Text for OCR	Text (Background Removal)	400 dpi
Text with images	Color Document	400 dpi
Line art	Line Art	300 to 3200 dpi
35 mm film (negative)	TPU for neg.Film	300 to 3200 dpi
4 x 5 or Brownie film (negative)	TPU for neg.Film	300 to 3200 dpi
35 mm slide or 4 x 5 transparency	TPU for pos.Film	300 to 3200 dpi

1   If your final file is for on-screen viewing (for example, on a web page or in an e-mail message), select 72 dpi for your resolution.

2   When enlarging an image, manually increase the resolution (dpi) proportionally to maintain the resolution of your original.

Light and Buttons

The scanner has one indicator light and two buttons. Light status and button functions are described in the tables below.

indicator light
Operate button
Start button
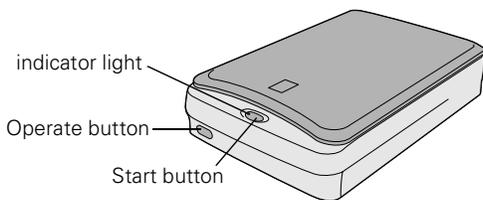
Scanner buttons

Button	Function
⏻ Operate	Turns the scanner on and off.
✧ Start	Lets you scan directly to an application with one touch.

Scanner indicator light

Light	Color	Status
Flashing	Green	The scanner is initializing or busy scanning.
On	Green	The scanner is ready to scan images.
Flashing	Red	The scanner may not be not properly connected to the computer. Check the cable connection. Then turn the scanner off and back on to reset it. Make sure the scanner is unlocked. Turn off the scanner, unlock the transportation lock, then turn the scanner on.
Off	—	The scanner is turned off.

Scanner Models

The scanner is available in three different models.

EPSON Perfection 1640SU includes:

❏ EPSON Perfection 1640SU scanner

❏ USB cable

❏ 3 CD-ROMs (Windows® and Macintosh™) that include: EPSON TWAIN Driver, EPSON Smart Panel,™ EPSON Software™ Film Factory™ Lite, ScanSoft® TextBridge® Pro, ArcSoft™ PhotoPrinter™ 2000 Pro, ArcSoft Panorama Maker™ 2000, ArcSoft PhotoMontage™ 2000, Electronic manuals (pdf and HTML), Adobe® Photoshop® 5.0 LE (on separate CD-ROM), Adobe PhotoDeluxe® (on separate CD-ROM)

❏ *Scanner Basics* guide

EPSON Perfection 1640SU PHOTO includes:

❏ EPSON Perfection 1640SU scanner

❏ Transparency unit and film holders

❏ USB cable

❏ 3 CD-ROMs (Windows and Macintosh) that include: EPSON TWAIN Driver, EPSON Smart Panel, EPSON Software Film Factory Lite, ScanSoft TextBridge Pro, ArcSoft PhotoPrinter 2000 Pro, ArcSoft Panorama Maker 2000, ArcSoft PhotoMontage 2000, Electronic manuals (pdf and HTML), Adobe Photoshop 5.0 LE (on separate CD-ROM), Adobe PhotoDeluxe (on separate CD-ROM)

❏ *Scanner Basics* guide

EPSON Perfection 1640SU OFFICE includes:

❏ EPSON Perfection 1640SU scanner (does not include document cover)

❏ Auto document feeder (with paper support, document mat, and spare paper path guide)

❏ USB cable

❏ 2 CD-ROMs (Windows and Macintosh) that include: EPSON TWAIN Driver, EPSON Smart Panel, EPSON Software Film Factory Lite, ScanSoft TextBridge Pro, ArcSoft PhotoPrinter 2000 Pro, ArcSoft Panorama Maker 2000, ArcSoft PhotoMontage 2000, Electronic manuals (pdf and HTML), Adobe PhotoDeluxe (on separate CD-ROM)

❏ *Scanner Basics* guide

Related Documentation

CPD-10858	EPSON Perfection 1640SU *Scanner Basics Reference Guide* (HTML) *EPSON Smart Panel User's Manual* (pdf)
TM-PERF1640	EPSON Perfection 1640SU Service Manual
PL-PERF1640	EPSON Perfection 1640SU Parts List
PL-PERF1640P	EPSON Perfection 1640SU PHOTO Parts List
PL-PERF1640O	EPSON Perfection 1640SU OFFICE Parts List
PL-B813172	Parts List for optional Transparency Unit
PL-B813222	Parts List for optional Auto Document Feeder